DEMAND RESPONSIVE LIGHTING CONTROL ACCEPTANCE DOCUMENT

CERTIFICATE OF ACCEPTANCE		NRCA-LTI-04-A
Demand Responsive Lighting Control Acceptance Document		(Page 1 of 4)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

Compliance Results: **[COMPLIES *or* DOES NOT COMPLY]**	Enforcement Agency Use: Checked by/Date

Intent:	This document is used to demonstrate compliance with acceptance requirements in §130.4(a)5 and Reference Nonresidential Appendix NA7.6.3 for demand responsive lighting controls. Attach additional sets of pages 2 through 3, as required, for all controls that must be tested.

Indicate functional testing methods used for this project:	
☐	Illuminance measurement *(Sections A and B-1 of this document should be completed)*
☐	Current measurement *(Sections A and B-2 of this document should be completed)*

A. Construction Inspection (NA7.6.3.1)		
☐	a.	The demand responsive control is capable of receiving a demand responsive signal directly or indirectly through another device. (NA7.6.3.1(a))
☐	b.	The demand responsive control is a certified OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN), as specified under Clause 11, Conformance, in the applicable OpenADR 2.0 Specification. (NA7.6.3.1(a), §110.12(a)1A) ***OR*** The demand responsive control is certified by the manufacturer to the Energy Commission as being capable of responding to a demand response signal from a certified OpenADR 2.0b VEN by automatically implementing the control functions requested by the VEN for the equipment it controls. (NA7.6.3.1(a), §110.12(a)1B)
☐	c.	The demand responsive control is capable of communicating using one or more of the following: Wi-Fi, ZigBee, BACnet, Ethernet, or hard-wiring. (NA7.6.3.1(a), §110.12(a)2)
☐	d.	The demand responsive control continues to perform all other functions provided by the control when communications are disabled or unavailable. (NA7.6.3.1(a), §110.12(a)4)
☐	e.	If the demand response signal is received from another device (such as an EMCS), that system must itself be capable of receiving a demand response signal from a utility meter or other external source. (NA7.6.3.1(b))
Construction Inspection Compliance: ◯ Complies ◯ Does Not Comply		

CERTIFICATE OF ACCEPTANCE		NRCA-LTI-04-A
Demand Responsive Lighting Control Acceptance Document		(Page 2 of 4)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

B-1. Functional Testing using Illuminance Measurement (NA7.6.3.2, Method 1)			
Building:	Floor:	Room:	Control:

☐	Space is representative of sample. (NA7.6.3.2) If sampling method is used, attach a page listing untested spaces in sample.	
Step 1: Select one location for illuminance measurement. The chosen location must not be in a skylit or primary sidelit area and the illuminance meter must not have a direct view of a window or skylight. If this is not possible, perform the test at a time and location at which daylight illuminance provides less than half of the design illuminance. (NA7.6.3.2, Method 1(a))		
a.	Enter the design illuminance value in footcandles (fc).	fc
Step 2: Full output test (NA7.6.3.2, Method 1(b))		
b.	Using the manual switches/dimmers, set the lighting system to full output. The lighting in areas with photo controls or occupant/vacancy sensors may be at less than full output or may be off. (NA7.6.3.2, Method 1(b)1)	
c.	Measure the illuminance at the selected location and enter the value in footcandles (fc). (NA7.6.3.2, Method 1(b)2)	fc
d.	Simulate a demand response condition using the demand responsive control. (NA7.6.3.2, Method 1(b)3)	
e.	Measure the illuminance at the selected location with the electric lighting system in the demand response condition and enter the value in footcandles (fc). (NA7.6.3.2, Method 1(b)4)	fc
f.	Calculate the percent reduction in illuminance from the full output condition to the demand response condition and enter the value in %. (Percent reduction = [(line c - line e) / line c] x 100%)	%
g.	Enter the area of the controlled space in square feet (ft^2).	ft^2
h.	Calculate the area-weighted average reduction in illuminance from the full output condition to the demand response condition for the building using the given formula and enter the value in %. (NA7.6.3.2, Method 1(b)5) Area-weighted average reduction = $\frac{[(f1*g1)+(f2*g2)+(f3*g3)+\cdots]}{[g1+g2+g3+\cdots]}$ x 100%	%
i.	The area-weighted average reduction (line h) is at least 15%. (NA7.6.3.2, Method 1(b)5, §110.12(c)) Enter yes (**Y**) or no (**N**).	
j.	The combined electric light and daylight illuminance is not reduced to less than 50% of the design illuminance in the tested space. (NA7.6.3.2, Method 1(b)5) ([line e / line a] ≥ 50%) Enter yes (**Y**) or no (**N**).	
Step 3: Minimum output test (NA7.6.3.2, Method 1(c))		
k.	Using the manual switches/dimmers in each space, set the lighting system to minimum output (but not off). The lighting in areas with photo controls or occupant/vacancy sensors may be at more than minimum output or may be off. (NA7.6.3.2, Method 1(c)1)	
l.	Measure the illuminance at the selected location and enter the value in footcandles (fc). (NA7.6.3.2, Method 1(c)2)	fc
m.	Simulate a demand response condition using the demand responsive control. (NA7.6.3.2, Method 1(c)3)	
n.	Measure the illuminance at the selected location with the electric lighting system in the demand response condition and enter the value in footcandles (fc). (NA7.6.3.2, Method 1(c)4)	fc
o.	The illuminance in the demand respond condition (line n) is not reduced to below the lesser of: the illuminance in the minimum output condition (line l) or 50% of the design illuminance (line a). (NA7.6.3.2, Method 1(c)5) Enter yes (**Y**) or no (**N**). Exception: In daylit spaces, the illuminance in the demand response condition (line n) may reduce below the illuminance in the minimum output condition. However, the combined electric light and daylight illuminance in the demand response condition must still be at least 50% of the design illuminance (line a). (NA7.6.3.2, Method 1(c)5 EXCEPTION)	
Functional Testing Compliance: ◯ Complies ◯ Does Not Comply		

CERTIFICATE OF ACCEPTANCE		NRCA-LTI-04-A
Demand Responsive Lighting Control Acceptance Document		(Page 3 of 4)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

B-2. Functional Testing using Current Measurement (NA7.6.3.2, Method 2)

Building:	Floor:	Room:	Control:	

☐	Circuit is representative of sample. (NA7.6.3.2) If sampling method is used, attach a page listing "untested circuits" that are represented by the tested circuit.	
Step 1: At the lighting circuit panel, select a lighting control circuit that serves spaces required to meet §130.1(e) and §110.12. (NA7.6.3.2, Method 2(a))		
Step 2: Full output test (NA7.6.3.2, Method 2(b))		
a.	Using the manual switches/dimmers, set the lighting system to full output in the space served by the selected circuit. The lighting in areas with photo controls or occupant/vacancy sensors may be at less than full output or may be off. (NA7.6.3.2, Method 2(b)1)	
b.	Measure the current at the selected circuit and enter the value in amperes (A). (NA7.6.3.2, Method 2(b)2)	A
c.	Calculate the sum of all the circuit currents in the full output condition and enter the value in amperes (A). (NA7.6.3.2, Method 2(b)5)	A
d.	Simulate a demand response condition using the demand responsive control in the space served by the selected circuit. (NA7.6.3.2, Method 2(b)3)	
e.	Measure the current at the selected circuit with the electric lighting system in the demand response condition and enter the value in amperes (A). (NA7.6.3.2, Method 2(b)4)	A
f.	Calculate the sum of all the circuit currents in the demand response condition and enter the value in amperes (A). (NA7.6.3.2, Method 2(b)5)	A
g.	Calculate the percent reduction in current at the selected circuit from the full output condition to the demand response condition and enter the value in %. (Percent reduction = [(line b - line e) / line b] x 100%)	%
h.	Calculate the total percent reduction in current from the full output condition to the demand response condition and enter the value in %. (NA7.6.3.2, Method 2(b)5) (Total percent reduction = [(line c - line f) / line c] x 100%)	%
i.	The total percent reduction in current (line h) is at least 15%. (NA7.6.3.2, Method 2(b)5) Enter yes (**Y**) or no (**N**).	
j.	The percent reduction in current at the selected circuit is no more than 50%. (NA7.6.3.2, Method 2(b)5) (line g ≤ 50%) Enter yes (**Y**) or no (**N**).	
Step 3: Minimum output test (NA7.6.3.2, Method 1(c))		
k.	Using the manual switches/dimmers in each space, set the lighting system to minimum output (but not off) in the space served by the selected circuit. The lighting in areas with photo controls or occupant/vacancy sensors may be at more than minimum output or may be off. (NA7.6.3.2, Method 2(c)1)	
l.	Measure the current at the selected circuit and enter the value in amperes (A). (NA7.6.3.2, Method 2(c)2)	A
m.	Simulate a demand response condition using the demand responsive control in the space served by the selected circuit. (NA7.6.3.2, Method 2(c)3)	
n.	Measure the current at the selected circuit with the electric lighting system in the demand response condition and enter the value in amperes (A). (NA7.6.3.2, Method 1(c)4)	A
o.	The current in the demand respond condition (line n) is not reduced to below the lesser of: the current in the minimum output condition (line l) or 50% of the current value at full output (line b). (NA7.6.3.2, Method 2(c)5) Enter yes (**Y**) or no (**N**). Exception: Circuits that supply power to the daylit portion of enclosed spaces as long as the current for lighting in the non-daylit portions of the enclosed space in the demand response condition is not reduced below the lesser of 50% power input level or the current in the minimum light output condition. (NA7.6.3.2, Method 2(c)5 EXCEPTION)	
Functional Testing Compliance: ◯ Complies ◯ Does Not Comply		

DEMAND RESPONSIVE LIGHTING CONTROL ACCEPTANCE DOCUMENT

CERTIFICATE OF ACCEPTANCE	NRCA-LTI-04-A
Demand Responsive Lighting Control Acceptance Document	(Page 4 of 4)

Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Acceptance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA/ATT Certification Identification (If applicable):
City/State/Zip:	Phone:

FIELD TECHNICIAN'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Acceptance is true and correct.
2. I am the person who performed the acceptance verification reported on this Certificate of Acceptance (Field Technician).
3. The construction or installation identified on this Certificate of Acceptance complies with the applicable acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
4. I have confirmed that the Certificate(s) of Installation for the construction or installation identified on this Certificate of Acceptance has been completed and signed by the responsible builder/installer and has been posted or made available with the building permit(s) issued for the building.

Field Technician Name:	Field Technician Signature:	
Field Technician Company Name:	Position with Company (Title):	
Address:	ATT Certification Identification (if applicable):	
City/State/Zip:	Phone:	Date Signed:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and I have reviewed the information provided on this Certificate of Acceptance.
2. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Acceptance and attest to the declarations in this statement (responsible acceptance person).
3. The information provided on this Certificate of Acceptance substantiates that the construction or installation identified on this Certificate of Acceptance complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
4. I have confirmed that the Certificate(s) of Installation for the construction or installation identified on this Certificate of Acceptance has been completed and is posted or made available with the building permit(s) issued for the building.
5. I will ensure that a completed, signed copy of this Certificate of Acceptance shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Person Name:	Responsible Person Signature:	
Responsible Person Company Name:	Position with Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone:	Date Signed: